

External cephalic version

Does it have a role in modern obstetric practice?

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SUMMARY

External cephalic version (ECV) for breech presentation at term substantially reduces the incidence of breech birth and cesarean section. Appropriate counseling and surveillance is important to ensure an acceptably low complication rate and reduce potential for litigation. Even a high success rate for ECV only minimally reduces the overall cesarean section rate.

RÉSUMÉ

La version céphalique externe (VCE) appliquée dans les cas de présentation du siège à terme réduit considérablement l'incidence de césariennes et d'accouchements par le siège. La surveillance et les conseils appropriés sont importants pour maintenir à un niveau acceptable le taux de complications et réduire les risques de poursuites légales. Même si la VCE connaît un taux de réussite élevé, la réduction du taux global de césarienne est minime.

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THE MANAGEMENT OF BREECH presentation continues to be challenging and controversial. Opinions are often polarized by personal experiences, good and bad. Perinatal morbidity and mortality is generally thought to be greater among vaginally born infants presenting by the breech, although the studies reporting such outcome are less than ideal.

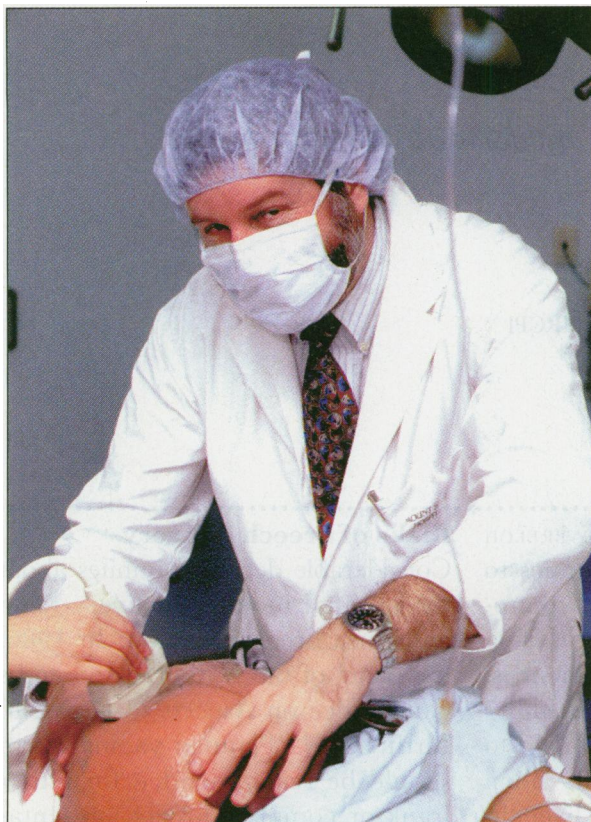
Unfortunately no prospective, randomized trials of sufficient size to resolve this issue have been carried out. As a result, many obstetricians have resorted to more frequent use of cesarean section (CS), approaching 100% in many centres. Although delivery by CS can reduce fetal risks inherent in vaginal breech delivery, maternal morbidity is increased. For these reasons, interest in external cephalic version (ECV) has been revived. This paper discusses the role of ECV in modern obstetrics.

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Risks of breech delivery

Considerable debate continues about the optimal mode of delivery for a fetus in a breech position. In 1986, the panel of the National Consensus Conference on Aspects of Cesarean Birth stated "Planned vaginal birth should be recommended for either frank or complete breech presentation at 36 weeks or more gestation and/or when the estimated birth weight is 2500 g to 4000 g."¹ In spite of this recommendation, CS increasingly seems to be the preferred method of delivery.

The move toward universal CS for breech presentation is based on a perceived improvement in perinatal outcome when compared with vaginal delivery. Most reports of this are based on retrospective studies. Many studies did not differentiate between elective CS and CS done for failed trial of labour. Few groups report on whether antenatal selection criteria were used in deciding method of delivery, on the seniority of staff present at delivery, and on the effect of parity. A comprehensive and rigorous review of 24 studies that presented results according to the intended mode of delivery but with the above



Dr Dan Farine attempts external cephalic version

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 limitations demonstrated that perinatal mortality was higher for the planned vaginal delivery groups than for the elective cesarean groups with a typical odds ratio of 3.86 (95% confidence interval 2.22 to 6.69). Neonatal morbidity was also higher in the planned vaginal delivery groups (OR = 3.96, 95% CI 2.76 to 5.67).^{2,3}

In the seven studies that addressed maternal outcome, morbidity was lower in the planned vaginal groups than in the elective CS groups. Such results, combined with an increasing fear of litigation, have led to CS rates of 80% to 100% for breech presentation in many centres. This in turn has reduced and will ultimately eliminate the opportunity for training in vaginal breech delivery. An adequately sized, randomized trial of appropriately selected vaginal breech deliveries versus elective CSs should be carried out before this situation is irreversible. Such a study is being planned in Canada, although the size of the trial

will necessitate it being a worldwide study. The other alternative to these two approaches to delivery is ECV. Acceptance of this option will depend on ultimate success rates and relative risks of the procedure.

History of ECV

Aristotle stated that authors of his time advised midwives confronted with breech presentations to place the head so that it presents at birth. The first written description of this appeared in 1807 by Wigand, who practised the procedure during labour between contractions. Enthusiasm waxed and waned in the early 1900s, but the procedure became popular again in the 1960s with the growing demand for noninterventional approaches to childbirth. Before the 1970s, routine use of ECV from 32 weeks onward was commonplace and was often performed in antenatal clinics.

There was considerable diversity of opinion on ECV's effectiveness; some enthusiastically recommended it, others violently opposed it, and still others expressed distaste for it. The popularity of ECV declined in the mid-1970s because of uncertainty of effectiveness, concern about the safety of the procedure,⁴ and apparent failure to improve on the relatively high spontaneous version rate. In recent years, with increasing efforts to curb the rising CS rate, attention has once again focused on the role of ECV.

Current status of ECV

Recent interest in ECV has also been in part due to increased attention to the more rigorous and scientific approach of meta-analysis. The literature on ECV shows great diversity of opinion on its effectiveness and safety. Immediate success rates range from 25%⁵ to 83%.⁶ A more rational goal than immediate success rate would be to assess whether ECV is more likely than expectant management to be followed by cephalic presentation at the onset of labour. This goal has been assessed in several randomized studies. Spontaneous version can occur at any time during the third trimester of pregnancy, although with decreasing frequency as gestation advances. The likelihood of spontaneous cephalic version

has been reported as 57% after 32 weeks and 25% after 36 weeks of pregnancy.⁷ Thus it is not surprising that meta-analysis of three randomized trials of ECV carried out before 37 weeks does not show reduction in the incidence of breech presentation at delivery or in the CS rate.⁸

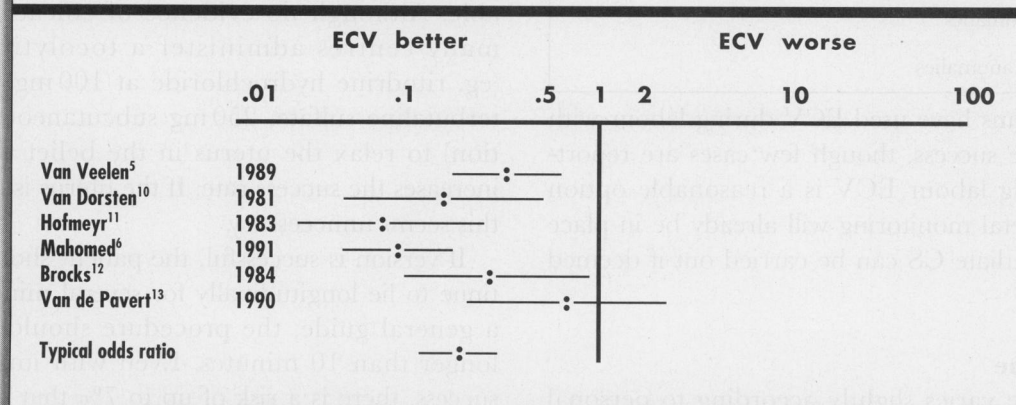
In contrast, when the procedure is carried out at term (>37 weeks), meta-analysis of six randomized trials with a total of 612 women recruited suggests that ECV reduces the incidence of breech presentation at birth sixfold

(OR = 0.15, 95% CI 0.11 to 0.21) and more than halves the CS rate (OR = 0.42, 95% CI 0.29 to 0.62).⁹ The studies are all consistent; five show a statistically significant reduction and one shows a trend toward reduction (*Figure 1*^{5,6,10-13}). The advantages of performing ECV at term are that time is allowed for spontaneous version to occur, other pregnancy complications that could contraindicate ECV might have become evident, reversion to breech presentation is less likely, and in the event of

Figure 1. Meta-analysis of the effect of ECV at term on non-cephalic births

AUTHOR	YEAR	ECV OBSERVED	TOTAL	CONTROLS OBSERVED	TOTAL	ODDS RATIO	95% CI	
							LOW	HIGH
Van Veelen ⁵	1989	39	89	67	90	0.28	0.16	0.51
Van Dorsten ¹⁰	1981	8	25	19	23	0.13	0.04	0.41
Hofmeyr ¹¹	1983	1	30	20	30	0.06	0.02	0.19
Mahomed ⁶	1991	18	103	87	105	0.07	0.04	0.13
Brocks ¹²	1984	17	31	29	34	0.23	0.08	0.68
Van de Pavert ¹³	1990	16	25	20	27	0.63	0.20	2.02
Typical						0.15	0.11	0.21

Line graph of log odds ratios



complications of ECV rapid delivery of a mature infant is possible.

Contraindications

Despite contraindications listed in *Table 1*, ECV can be attempted for most women with breech presentation. Most contraindications are self-explanatory. Recent reports suggest that ECV can be carried out safely in patients with mild hypertension, with gestational diabetes, and with a previous CS scar (all previously listed as contraindications).

Table 1. Contraindications to ECV

ABSOLUTE
Multiple pregnancy
Antepartum hemorrhage
Placenta previa
CS necessary
Premature rupture of fetal membranes
Severe preeclampsia
RELATIVE
Previous CS
Diabetes
Hypertension
Impaired fetal growth
Obesity
Fetal anomalies
Uterine anomalies

Physicians have used ECV during labour with reasonable success, though few cases are reported. During labour ECV is a reasonable option because fetal monitoring will already be in place and immediate CS can be carried out if deemed necessary.

Technique

Technique varies slightly according to personal preference. Patients should be fasting and informed consent (including knowledge of the risks of breech presentation, the risks of ECV, and

the possibility of ECV being unsuccessful) obtained. Many doctors do a baseline nonstress test (NST) to confirm fetal well-being and ultrasound examination to confirm the presentation and assess amniotic fluid volume before the procedure. Analgesia should not be used.

With the operator facing the woman's abdomen, elevate the breech from the pelvis. If the breech cannot be disengaged, the ECV is likely to fail. Maintain the elevated breech with the right hand while the cupped left hand locates the fetal head. A "forward roll" or "backward somersault" is then attempted by steadily moving the breech in a gentle but controlled fashion toward the left iliac fossa while exerting lateral pressure on the fetal head toward the right flank and ultimately toward the pelvis.

If version is unsuccessful in one direction, the other direction can be attempted with either the operator moving to the other side of the bed or the mother changing position. Movements should be steady and controlled rather than rushed or jerky. Many groups suggest that the procedure should be done under ultrasound guidance to assess fetal heart rate and monitor the axis of the fetus. As a minimum, the fetal heart should be auscultated every 2 minutes. If bradycardia occurs, the procedure should be stopped until the fetal heart rate recovers before any further attempts are made (if at all). Facilities and personnel for immediate CS should be available. Although no evidence of efficacy exists, many centres administer a tocolytic agent (eg, ritodrine hydrochloride at 100 mg/min or terbutaline sulfate, 250 mg subcutaneous injection) to relax the uterus in the belief that this increases the success rate. If the uterus is relaxed, this seems unnecessary.

If version is successful, the patient should continue to lie longitudinally for several minutes. As a general guide, the procedure should last no longer than 10 minutes. Even with immediate success, there is a risk of up to 7% that the fetus will revert to breech presentation before delivery. In such circumstances it is sometimes reasonable to repeat ECV.

Risks of ECV

Attempting ECV causes negligible morbidity to the mother. Morbidity consists of the discomfort at the time of the procedure, the possibility of adverse effects from any of the drugs used to facilitate version, and the hazards of placental abruption (a rare but recognized complication of ECV).

When performed before term, the highest fetal mortality rate quoted approached 1% where general anesthesia or nitrous oxide was used. A review of the reported series on more than 2000 external cephalic versions revealed four fetal deaths associated with the procedure when nitrous oxide and general anesthesia were used, but none when these agents were not used. Nonreactive NST results and bradycardias occur in approximately 10% of fetuses but are usually temporary.

Randomized trials at term show no increase in mortality with ECV, but the numbers are too small to clearly address the risk of fetal loss. More recent literature on ECV with appropriate monitoring and no analgesia or anesthesia suggests that fetal risk is very slight.

Effect on overall CS rate

Breech presentation accounts for 12% to 15% of all CS deliveries and contributes approximately 10% to 16% to the rise in overall CS rate (which has increased from 5.7% in 1970 to 24% in 1990 in the United States with similar trends seen in Canada). As breech presentation occurs in only 3% of cases, even a high success rate with ECV will have a minimal effect on the overall CS rate. With a background CS rate of 20%, a successful ECV rate of 75% will reduce the overall CS rate by less than 2%. Looked at in another way and using the most conservative estimates of success from the randomized studies, for every 100 ECV attempts, 34 breech births and 14 CS deliveries would be prevented.¹⁴

Prediction of success

At least 15 reports have attempted to identify factors that predict success. These factors include gestation, parity, extended legs, placental position, amniotic fluid volume, height, race, birth weight,

and degree of engagement. No one factor obviously predicts procedure success. Most doctors agree that multiparity, adequate amniotic fluid volume, and nonengagement are favorable predictors.

Some argue that ECV should not be attempted if oligohydramnios is present because failure is virtually inevitable, but, because of the poor prediction of success with other factors, all other patients with breech at term and no contraindications should at least be considered as candidates. Applying some of the above criteria should help us refine our ability to predict the likelihood of success and thus help us counsel and select patients for the procedure.

Alternative methods of CV

A variety of techniques have been used to promote cephalic version. These include adoption of the knee-chest position with a full bladder for 15 minutes every 2 hours of the day for 5 days,¹⁵ maternal positioning with elevation of the pelvis and relaxed abdominal breathing,¹⁶ and acupuncture. This latter method, dating back to ancient times, involves lighting a moxa stick and bringing it close to the skin until it produces reddening due to local vasodilatation at the Zhiyin point (67B) located in the vicinity of the outer corner of the toenail of the fifth toe.¹⁷ All of these methods have reported reasonable success in small studies. Further trials are needed to establish the effectiveness of these maneuvers.

Introducing an ECV service

One of the major obstacles to introducing ECV is the lack of formal training in the procedure in North America. A practical approach would be to identify one or two individuals and arrange for them to attend an institution where ECV is practised. The technique can be learned quickly, and witnessing a few ECVs should be sufficient to prepare doctors to attempt several versions under supervision. The procedure should ideally be performed with the aid of ultrasound and fetal heart rate monitoring. Facilities and personnel should be available to carry out immediate CS in the event of sustained bradycardia. ➤



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Conclusion

Current available evidence supports more widespread use of ECV to reduce the number of vaginal breech births and CSs. Although risks to the fetus are not negligible, performing ECV at term with appropriate facilities appears to be a proven and effective form of care. ■

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